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Incoming expectations of the digital environment formed at school

September 2014

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**“Incoming expectations of the digital
environment formed at school”**
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Aims, scope and approach

Incoming expectations of technology in higher education (HE) are predominantly framed by previous experience with technology in an educational setting or context.

For the majority of incoming students this setting is school (although it must be noted that not all incoming students arrive via this route). A key activity of Phase 1 of The Digital Student project was a high level literature review of sources which reported on the ownership and use of digital technology in education.¹ An element of this work was a cursory exploration of technology in schools. This aspect of the initial literature review revealed a number of areas which appeared to influence students incoming expectations of the digital environment in HE which this study explores in much greater depth. This report is part of a range of activities which formed Phase 2 of the Digital Student Project jisc.ac.uk/research/projects/digital-student

While care has been taken to understand the nature and concerns of the schools sector, it should be noted that the authors have experience in researching HE, not schools, and are in effect only 'looking in' to this educational setting to shed some light into students' experiences of technology in school and how this might shape their expectations of technology provision and use in HE. It should also be noted that this report is in no way intended to be a comprehensive review of technology in schools, it is deliberately focused on those factors which are most likely to influence expectations rather than an audit of the technology schools own.

Students entering HE have no expectations that they will be taught how to use technology in an 'ICT' subject style unless it directly relates to their chosen discipline. Given this, the report does not consider the specifics of 'ICT' as a subject in schools and focuses instead on the use of digital technology within and around the curriculum more generally.

In Phase 1 of the Digital Student project we consulted the following literature relating to schools:

- » BECTA, Harnessing Technology Schools Survey (2010a)²
- » BECTA, Harnessing Technology School Survey: Learner Report (2010b)³
- » DfE, Using Technology to improve Teaching and Learning in Secondary Schools (2012)⁴
- » OFSTED, ICT in schools 2008-2011 (2011)⁵
- » European Commission (EC) Survey of Schools: ICT in Education (2013)⁶

In Phase 2 we have drawn more deeply on these and expanded the pool of literature with additional sources (see below). However, it proved difficult to find additional literature which related to the general day-to-day use of technology in schools⁷. The demise of BECTA in 2010 has seriously reduced the volume of contemporary research focused on day-to-day practice with digital technology in schools and as such there are very few sources which give a truly up to date (post 2010) broad picture of practice in this area.

There are examples in recent literature of 'new' technologies being introduced into specific schools such as giving students tablet computers.⁸ These might be of interest in themselves but are not indicative of normative use of technology across the schools sector or what Selwyn (2011) describes as "The State of the Actual". As such we have drawn on a wider range of sources which have helped us to build a picture of the manner in which digital technology is incorporated into the teaching practice within schools and the role it plays in students learning both within, and beyond, formal educational contexts.⁹

Given that there is little recent literature which gives a general picture of the use of technology in schools in a similar character to the original BECTA reports we have supplemented our desk research with a qualitative activity.

We conducted semi-structured interviews about the manner in which technology is used in schools with four technology experts working in the sector:

- » Rebecca Eynon - Associate professor, department for education and the Oxford Internet Institute, University of Oxford
- » Josie Fraser - ICT strategy lead (children's capital) at Leicester City Council
- » Bob Harrison - Educational consultant, member of the 'Education Technology Action Group'
- » Dan Sutch - Head of development research, Nominet Trust

In addition to this we undertook a total of four focus groups in two schools with circa 20 students from years 11-13. While this is clearly a highly limited source of data it is of note that the schools involved were of a very different character; an inner-city academy in Birmingham with modest aspirations for pupils and a highly successful (in league table terms) academy in rural Oxfordshire. Given the minimal qualitative work undertaken we cannot make confident claims from the data gathered. Instead we have used this data to cross-check the literature in indicating which trends have remained similar and areas which may have evolved in recent years.¹⁰

[1]

- 1 digitalstudent.jiscinvolve.org/wp/students-expectations-and-experiences-of-the-digital-environment-phase-1-study/
- 2 dera.ioe.ac.uk/1544/1/becta_2010_htss_report.pdf
- 3 dera.ioe.ac.uk/1555/1/becta_2010_htsslearner_report.pdf
- 4 media.education.gov.uk/assets/files/doc/e/using%20technology%20to%20improve%20teaching%20and%20learning%20in%20secondary%20schools.doc
- 5 ofsted.gov.uk/sites/default/files/documents/surveys-and-good-practice/i/ICT%20in%20schools%202008-2011.pdf
- 6 ec.europa.eu/digital-agenda/sites/digital-agenda/files/KK-31-13-401-EN-N.pdf
- 7 As confirmed in discussion with Rebecca Eynon -Associate Professor, Department for Education and the Oxford Internet Institute, University of Oxford
- 8 For example, 'The iPad as a Tool for Education – a case study' naace.co.uk/publications/longfieldipadresearch
- 9 See bibliography.
- 10 A brief summary of focus group findings can be found in Appendix A

Ownership, access and use

Data from 2010 (Becta 2010a) indicates that secondary school teachers have highest level of access to Interactive Whiteboards (IWB), desktop computers and digital cameras. Access to mobile devices such as PDAs, netbooks and mobile phones is very restricted.

In 2010, there were on average three students per one computer and most schools were placing computers in dedicated computer rooms. However, a small-scale qualitative study conducted by Department of Education (2012), and the findings from the Ofsted (2011) secondary schools' inspection indicate that some schools had moved away from computer rooms to distributing laptops or mobile devices in a more flexible manner. A similar trend can also be observed across EU countries (EC, 2013): A comparison of survey results from 2006 and 2011 has shown that, in some groups of countries, there has been a clear trend away from desktop computers towards procurement of laptops and handheld devices such as mobile phones. There is a need for an up-to-date investigation into UK schools to compare to what extent these factors have changed since the last surveys conducted by Becta in 2010.

The schools visited as part of this study had dedicated computer rooms for booking by teachers whenever they planned to use ICT for their lessons. Also, each classroom was equipped with one desktop computer placed on the teachers' desk and with a projector. Additionally, the school in Birmingham had laptops to be booked out of the library for use in the classroom. In both schools, students complained that the computers were slow and software was not being updated regularly.

Evidence on how often schools purchase new hardware and update software packages was missing in the literature we reviewed. However, 'investment in new ICT infrastructure and services' in the next three years (i.e. by

2013) was given a priority in the ICT strategies of 46% of secondary schools surveyed by Becta in 2010. Similarly, 39% of schools prioritised 'replacement of existing equipment'. In contrast, only 12% of secondary schools felt they needed to improve network infrastructure and connectivity (Becta, 2010a).

Broadband is a norm in secondary schools but the literature we reviewed did not provide any information on the extent to which schools are providing wifi for students. Students' access to the network is controlled and in most secondary schools content is filtered by a third party provider filtering system, which is sometimes additionally enhanced with a system developed in-house (Becta, 2010a). Generally, students we interviewed understood the e-safety aspects and seemed to accept them. However, some students from the school in Birmingham felt that blocking was a bit random and not always justified - for example, blocking YouTube meant that students were also deprived from the 'good sides' of this service, such as tutorials on how to use various tools or computer programmes.

Most schools do not encourage (or even do not allow) students to use their personal devices in the classroom, with the exception of laptops in only some of the schools and for only some of the lessons (Becta, 2010a). There seems, however, to be a tension between the official school policies and day-to-day use on the ground. In schools we visited, 'Bring Your Own Device' (BYOD) was not encouraged officially. Despite that, in the school in Oxfordshire, some teachers were allowing the students to use their own devices for learning in the classroom.

Some school leaders have started to recognise that, in the long term and in view of increased levels of technology ownership by students, BYOD could provide a solution to the problem of access to technology in schools (Ofsted 2011, DfE 2012). For example, some UK secondary schools have been developing new approaches to technology provision either by encouraging students to use their own devices (laptops, tablets, mobiles) for learning in the classroom (Ofsted, 2011) or by moving away from Interactive white boards (IWBs) towards provision of projectors and tablets for greater flexibility (DfE, 2012). Although these are examples that diverge from the norm, a trend towards BYODs finds confirmation in similar developments in schools across Europe:

“Whether sanctioned or not – and it increasingly is – students appear to be bringing their own technology into school, and using it for learning.”

EC 2013

BYOD policies are implemented, for example, in Denmark, Portugal and Norway.

The learners’ survey conducted by Becta (2010b) indicates that, in school, students use Internet mainly for listening to music and looking at pictures or videos, finding information online, messaging, and downloading or uploading videos. Accessing the Virtual learning environment (VLE) was mentioned least frequently. Students used technology mostly for creating presentations (PowerPoint), writing (Word) and creating charts (Excel).

IWBs and VLEs are now close to ubiquitous in secondary schools, largely due to substantial governmental funding throughout the first decade of the twenty first century, but also due to the fact that, gradually, secondary schools have been taking ownership of technology procurement. By 2009 secondary schools were spending annually £332 million on technology including hardware, infrastructure, curriculum related software and digital content (Selwyn 2011).

With respect to VLEs, Younie & Leask (2013a) note that, unlike universities, schools tend to adopt a greater variety of commercial solutions listed on the Becta approved supplier list. This has definitely been the case until very recently, but now, after the systems purchased with Becta funding have come to the end of their contracts, schools (or for that matter Local Authorities) might change their approaches to technology procurement:

“In terms of software and services, until recently, you may have seen a school VLE (Virtual Learning Environment) included as typical or core provision. However, central funding has dried up for VLE licences in the schools sector, and adoption was fairly mixed across many schools”

Josie Fraser

Indeed, we found a few examples of secondary schools that had moved away from a VLE towards a commercial system based on an open architecture (e.g. The Streetly Academy or Oxted school). Again, these are only isolated examples and VLEs are still prevalent in most of the schools.

Although it is now safe to say that all schools are equipped with a VLE and IWBs, their actual use for teaching and learning vary between schools and between individual teachers within the same school.

The primary use of the VLE by teachers is to upload and store resources for lessons and for students to download and upload homework (Becta 2010a). About half of teachers surveyed in 2010 (ibid) reported that they were uploading resources for lessons and homework most days in the week and the platform was used for assessment at least monthly.

In both schools visited as part of this study, VLEs were underused and the students complained about the irregularity with which individual teachers were actually uploading resources onto the learning platform:

"It's not really updated often, so the resources aren't updated."

"There is a lot of effort to keep it up and maintain it as well"

Focus group participant, school in Oxfordshire

In the school in Oxfordshire, students openly admitted that checking the platform was "a hassle" and although the school tried to encourage the use of the VLE by teachers and students, the whole initiative was unsuccessful. It has to be noted, however, that these students were very much aware of the overall benefits of being able to access resources from the learning platform: a "more useful platform" was listed among the things students wished to see improved in the school's technology provision. It seems as though teachers' inconsistent approach to uploading resources negatively affected students' enthusiasm towards their own use of the VLE.

In the school in Birmingham, instructions and resources for students were only uploaded into the VLE in case of a teacher's absence. The students also complained about the way in which the VLE was structured - no distinction between the years meant that students were receiving notifications even if these were not directly relevant to them.

The literature reviewed shows that VLE is rarely used for collaboration and communication, the latter with exception of communicating instructions and notifications. Only 38% of secondary school teachers reported to make use of chat and discussion forum functionalities of the learning platform (Becta 2010a). A study conducted by Jewitt et al (2010) zoomed into the VLE use by six secondary schools that were considered "effective users of learning platform technologies". In these schools, VLE was not only used as 'one-stop-shop' repository of

resources but also as a communication platform for both administrative and learning purposes: discussion boards and surveys were used to elicit students' voice in various aspects of the schools' life; chat, discussion forums, and blogging were used to encourage dialogue and reflection (ibid.). Similarly, DfE's small-case study into fifteen secondary schools that were known to make 'effective use of technology' has shown examples of more interactive use of VLE: frequent opportunities for creating and sharing one's own work for comments (e.g. e-portfolios, blogging) and dialogue (e.g. discussion forum, chat) (DfE, 2012). Again, it should be noted that this type of VLE use is by no means a norm and in both cases the schools under study were carefully pre-selected for research purposes.

IWBs have a widespread use across subjects, but there is little evidence of transformational use (Underwood, 2010). Levels of 'use sophistication' vary considerably between teachers: from simply displaying PowerPoint presentations, through browsing the Internet (e.g. Google Maps, pictures) to more engaging use - for example in maths, where students use IWB to draw graphs (ibid.). In both schools we visited, IWBs were not used much and the students could not give any examples of use 'beyond chalkboard'.

Generally, teachers use ICT to plan their lessons, create resources, and upload and store digital resources for lessons and homework in the VLE. ICT is less frequently used in the classroom, with exception of IWBs, mostly for presentation purposes. The use of ICT in the classroom seems to happen more frequently where flexible provision of computers is provided or where teachers allow students to use their personal devices for learning - in such cases portable devices are mainly used to search for, gather and discuss sources:

"In economics we normally check the news, like at the start, to see what's going on that day [...] In health and social care you've got to look up different references and stuff."

Focus group participant, school in Oxfordshire

Interestingly, literature we reviewed provides little information about the types of digital content and curriculum related software that schools purchase and this despite the fact that by 2009 school spending on curriculum software and content has reached 15% of the overall annual spending on technology procurement (Selwyn 2011). This is a considerable amount, given that, in general, hardware and infrastructure are much more costly.

Overall, digital technology is increasingly becoming central to the functioning of schools, even though it seems that schools do not necessarily keep up pace with hardware and software updates and it is questionable how well the use of technology is integrated into teaching practice.

Students expect that HE will provide them with faster computers and up-to-date subject-related software, but they expect computers to be placed in dedicated labs as it is in the case of schools. In addition to fast broadband, students expect to have unrestricted access to unblocked wifi on HE premises, but they do not expect to use their devices in the lecture rooms as part of the learning and teaching process.

The expectation of 'better technology' in HE (i.e. faster, up-to-date) is not surprising, given that HE in the UK is still seen as the 'home' of 'high-tech' even though this might not trickle down through to the provision of standard day-to-day computing facilities.

Use of technology in secondary schools happens, to large extent, within traditional pedagogical bounds: massive amounts of contact time with teachers, teacher-directed learning, and pre-selected resources are still prevalent, especially in lower years with slightly more independent learning expected in years 12 and 13. This has clear bearings on students' expectations of how technology will be used for teaching and learning in HE: VLEs are expected to be used in similar ways to schools, but with resources being uploaded in a more consistent manner. As standard, students expect to have access to

PowerPoint presentations from the lectures to support revision, but they hope that some lectures will be recorded. Students expect to do more independent learning and have excellent access to library resources, but they do not expect to receive any training on how to find and evaluate resources online, as they are confident about their skills in this area which developed as part of preparing homework.

The boundary between 'formal' and 'independent' use of technology

"We need to take account as much of young people's autonomous, informal learning as we do school learning. We need to then think about how can we get them to realise that learning is important, in the way in which they will learn at HE."

Dan Sutch (Interview)

Significantly it would appear that when pupils enter the school grounds they assume that the provision and use of digital technology will be more limited than the experience they have with similar technology at home.

"Students live in worlds filled with engaging technology and opportunities to pursue personal interests and motivations. Once they enter schools they have to leave behind such interests and motivations. This creates a divide between the way 'schools teach' and the way 'students learn' in informal learning environments. Teachers are nowadays facing a challenge trying to bridge this gap."

iTEC project (2013) - 2nd Summary report of scenario development process, Appendix 3

This is not always the case as not all pupils will have access to the Web in the home but it is a fair generalisation at this point in time and is becoming more marked with the proliferation of relatively affordable smartphones and the decreasing cost of mobile Web

connectivity. The pupils who took part in our focus groups appeared to be sanguine about the limited digital provision in their schools, understanding that their institution would always be a little behind in the technology it provided and that reasonable steps had to be taken with regard to 'E-Safety' and the throttling of wifi.

While access to the Web and its use in the curriculum might be limited compared with home use much homework is set with the little discussed assumption that students will complete tasks at home using online sources of information. Nevertheless, this home-based practice does not appear to be directly supported systematically by schools.

"Currently, the way in which information literacy is taught in the UK doesn't facilitate the evolution of independent learning. This may partly explain the skills gap observed between subjects or between secondary and higher education."

Newman (2008)

This is significant because access to the Web at home means that students are developing 'independent' learning methods, or perhaps habits, earlier in their educational careers than in a pre-Web era but often without formal pedagogical or critical support. This then forms student expectations around what it means to be competent with using technology for learning and the robustness of their practices - practices which may need to be explicitly evolved or challenged when entering higher education:

"Teaching digital literacy skills within higher education is too late – by then individuals have already developed ingrained coping behaviour. They 'get by' using Google and do not recognise that they are lacking skills. Information skills must therefore be developed during formative school years."

Newman (2008)

This effect was borne out by our focus groups in which pupils described themselves as being good at finding 'quality information' online but when questioned more closely they described processes of discovery rather than evaluation of sources. They indicated that skills or literacies which related to the effective use of the Web were their domain and that there was no need for school to provide support or advice on such things as how to find good quality information sources or how to collaborate effectively online.

"We've kind of been brought up that way though, we've learned from being this generation how to find good stuff, good resources"

Focus group participant, school in Oxfordshire

This is despite the fact that when questioned more closely the students participating used relatively basic strategies for seeking out and evaluating information online.

This perhaps does not consider a problem at school level but is a reminder that the nature and location of independent learning is changing and that incoming student practices need to be discussed and supported. Certainly the school pupils in our focus groups did not feel they needed to attend 'information literacy' sessions and generally thought that they shouldn't be mandatory in HE.

"...as teenagers move through secondary education, school seems to lose credibility as a source of technology expertise. Unlike the earlier years, technology instruction at this stage was often viewed as being irrelevant and inappropriate..."

Davies & Eynon (2013)

This is particularly important, as student's approaches to independent learning are highly influential on their potential to succeed in HE. Expectations around the nature and ownership of these approaches are now being formed earlier because of the opportunities the Web provides and are being brought into HE by students rather than developed post-school.

Staff training

Definitions of competency with digital technologies are rarely straight forward and staff with similar skills will variously claim to be competent or lacking in confidence in an unquantifiable manner. The Digital Literacy Leicester project¹¹ has used a survey approach to tackle this problem and benchmark staff's self-assessed competencies in various digitally related categories.¹² This has highlighted the challenges faced by schools when approaching training as the results of the survey require thorough analysis to produce an understanding of what staff perceives to be the role of digital technology and their responsibilities relative to it.

The literature we consulted indicated that training around digital technology delivered for staff in schools tends to be highly functional and centred on 'office' type packages and institutionally owned platforms (e.g. Ofsted, 2011). That is to say that it is normally focused on learning how to use a given platform, software or piece of hardware without necessarily contextualising that use within teaching and learning practice. This cuts against recommendations in the literature that training should be part of a wider professional development approach tied to teaching and learning, for example:

"Training and professional development for teachers is an important component of successful approaches. At least a full day's support or on-going professional inquiry-based approaches appear the most successful. The implication is that such support should go beyond teaching skills in technology use and focus on the effective pedagogical use of the technology to support teaching and learning aims."

Higgins et al, (2012)

The literature review indicated that the role of training was seen, at least in part, as helping staff to 'catch-up' with their students' use of technology and there continues to be an underlying concern that students are in general 'better' with technology than staff. However, this sense of 'better' is rarely

with regard to the incorporation of technology in learning strategies. Certainly the principle of the 'Digital Native'¹³ still has currency in the schools sector as it does in HE.

"Sometimes staff training in the use of basic ICT packages such as word processing or PowerPoint had brought staff capability up to the level of many of their students, but had not had any impact on teaching and learning or student achievement because staff had not yet embedded ICT use effectively into their teaching methodology."

OFSTED ICT in Schools 2008-2011

"This is where there is a real problem for staff in that seeing someone being able to Google or being able to do something very quickly online or to use the Digital Whiteboard is too easily construed as 'they understand how to use this for learning'"

Dan Sutch (interview)

The manner in which digital technology is (or is not) incorporated into teaching practice as a result of training approaches has a significant influence on student's expectations of that particular type of technology.

"Teachers use a wide range of technologies with different affordances but find the 'most useful' to be those most associated with teacher-led, didactic classroom practice (e.g., IWB, projector).

ITEC project (2013) - 2nd Summary report of scenario development process, Appendix 7

This then creates assumptions amongst students of the role of certain types of technology within a formal educational context. Encouraging the formation of expectation bounded by a fairly limited frame relative to the hypothetical pedagogical potential of given digital technologies. For example, students' predominant experience of digital technology in the classroom appears to be the use of PowerPoint by their teachers:

"In many cases, PowerPoint has become the tool of choice for teaching and learning – at Aylmer [the school in the study], many teachers think of PowerPoint as synonymous with ICT – even though both students and teachers recognise that it can potentially discourage complex thinking, reasoning, and writing, and can encourage pointless animation and ostentation."

Reedy (2008)

Similarly VLEs tend to be perceived predominantly by students entering HE as locations for distributing content (both pedagogical and organisational) simply because this is how they tend to be used by schools even though the platform may be technically capable of supporting various forms of engagement. This is not to say that some students did not know of more imaginative uses of technology, they generally did not appear confident this would happen in a school context:

"The young people we talked to were clearly aware of or had experience of more creative uses of technology to support learning, and were enthusiastic to see more of this. The most commonly reported issue in relation to this was 'boring use of PowerPoint'."

Josie Fraser (Interview)

Understandably schools mainly see digital technology as a tool to aid the delivery of the curriculum and support the administrative aspects of the institution. Given this, digital technology tends to be appropriated within existing pedagogical and organisational principles rather than as a mechanism to transform practice.

This approach to digital technology may well be effective given that the schools system is predicated on face-to-face contact and is designed to serve a very closely defined curriculum. Where challenges might arise is in the transition to HE where face-to-face contact is significantly reduced and there is an increasing institutional expectation that

digital technology will play a role in managing education delivered at scale, potentially becoming an element of 'contact' time.

The students in our focus groups had very low expectations of their teachers' ability to use digital technology, hoping they would be able to operate the digital whiteboard or digital projector to show them content but not much more (unless they were teaching a specific digital skill such as video editing, programming or image manipulation). In essence, their expectations were geared around the kind of functional skills that seem to be prioritised in training approaches. These low expectations of staff are likely to be translated in the HE environment.

In addition to this, there is little evidence of staff being trained how to make best use of the Web in general (digital spaces/platforms/technology not owned or subscribed to by the institution) or how to support students in their use of the Web. This despite the fact, as discussed, that schools are well aware that students use the Web in a broad manner when completing homework.

"The efforts of formal education to teach teenagers about technology have until now connected quite poorly with the things that interest and preoccupy them most, and nor do these seem to offer a way of building on the skills and understandings they are potentially developing through their social networks and other online engagements."

Davies and Eynon (2013)

[1]

[11 digilittleic.com/](http://11.digilittleic.com/)

[12](#) Atkins, L., Fraser, J., and Hall, R. (2013) DigiLit Leicester: 2013 Survey Results. Leicester: Leicester City Council (CC BY-NC 3.0)

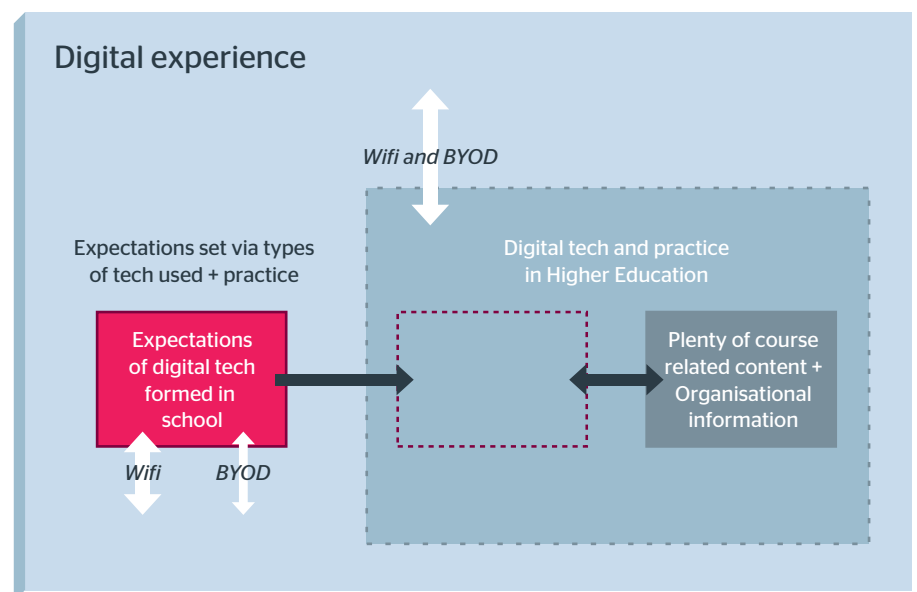
[13 marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf](http://13.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf)

Translating expectations into higher education: a condensed view

“...how (or how well) technology is used is the important consideration rather than the choice of a particular technology or a particular approach.”

Higgins et al. (2012)

The diagram brings together much of what has been discussed throughout this report to highlight the relationship between expectations formed while at school and HE provision.



As discussed, expectation 'limits' formed in school are as much about the way in which the available tech is incorporated into practice as it is about what technology is available. In many cases the former is the greater limiting factor on expectations. The digital boundary between school and home contexts is relatively hard edged as schools have a duty to monitor and control access to the Web. While there are examples of official and unofficial BYOD activity, use of personal devices in classroom teaching is still rare. The hard edge also comes about because the practices students develop to complete homework using the Web (as part of their broader digital experiences) do not tend to be incorporated into teaching and the training of staff in technology is usually functional in nature, not practice based. This is then reflected in the way in which the digital is incorporated into delivering the curriculum. The lack of crossover in terms of formal educational practice delivered by schools and the informal learning practices of students begins to form a divide between practices students feel they own and are competent with (such as discovering suitable sources online) and those

the institution are perceived to own or predominantly use (such as creating and delivering course related PowerPoints). This notional division of competencies and responsibilities forms expectations around practice which are brought into HE in tandem with expected improvements in technology provision, especially around access to the Web, BYOD and access to digital sources in support of their studies.

The technology/practice boundary between the formal institution and the wider digital landscape is more porous in HE than in schools, incoming students are likely to initially experience this 'blurring' of institutional boundaries through access to Social Media via the institutional network.

Conclusion

As outlined in appendix A the school students that participated in our focus groups have a reasonably clear idea of the technology they expect, or feel entitled to, when entering HE. These expectations largely match those outlined by Phase 1 of the Digital Student project so we can be fairly confident of what we might describe as an expectation threshold in terms of technology provision.¹⁴ This threshold is not fixed and we can see the steady transitioning of key technologies sliding from the category of 'enhanced' provision to 'entitled' provision. A good current example of this is video lecture capture which is expected by some but is categorised as a 'nice to have' by others.

Significantly incoming students appear to expect general technology provision to improve as they enter HE but despite not wanting 'technology for technology's sake' have indistinct notions of what effective learning and teaching practice with digital technology might look like at HE level. This is where 'Digital Native' assumptions can be damaging as access to, or ownership of, digital technologies by students does not equate to learning related competencies.

It is important that HE develops effective methods of communicating the role and value of digital technologies, both those that are provided directly by the institution and the wider Web. HE institutions need to help incoming students reflect on the role digital technology can play in their learning and to challenge what could be very limited expectations formed around the potential of given technologies. It is important to consider that schools tend to be more didactic in approach than HE and that learning and teaching in schools is predicated on significant amounts of face-to-face time. Expectations of the use of technology in teaching practice are influenced by these school-centric factors and may need to be challenged when students enter HE.

Overall there appears to be more 'top-down' strategic work on integrating technology with learning and teaching being undertaken in the HE sector than in the

schools sector, especially around the relationship between the institution and the wider Web. So while at times it may appear that schools own more 'new' technology than HE the way this is incorporated into practice is likely to be rudimentary with 'good practice' being driven by scattered individuals.¹⁵

Furthermore, it is likely that the perception that schools own 'better' or 'more exciting' technology is driven by the disproportionate visibility of specific interventions or experiment and is not representative of the schools sector as a whole. The HE sector should step back from concerns around students expectations of technology in these terms, concentrating instead on continuing to improve existing services (Wifi, BYOD, access to digital resources) and the ongoing integration of technology in learning and teaching contexts.

Beyond the not insignificant task of providing what incoming students feel they are entitled to, progress could be made in enhancing the way staff incorporate digital technology into their practice and in the manner in which HE supports the 'independent' online learning practices of students. In both of these areas HE has the opportunity to enrich the student experience and to provide a clear progression from school through to the workplace.

[1]

¹⁴ In one case students in a focus group chose not to include 'access to good quality digital resources' and 'good quality wifi' in the card sorting activity as they claimed "It's going to be there at university so we don't need to think about it" or words to that effect.

¹⁵ This is not to say that 'good practice' isn't also driven by 'scattered individuals' at HE level but that top-down initiatives are beginning to gain traction and that there is an increasing focus on the role of technology in learning and teaching contexts that go beyond seeking out information online.

Recommendations

Transition

Make the value of the digital explicit

It was clear from our focus groups that incoming students have fairly rudimentary, often conservative expectations around the nature of education at HE level. Induction and pre-induction processes need to be explicit about how both institutionally provided technologies and the Web can be of value to HE level study. This involves describing how technology can be incorporated into personal learning practices and not simply outlining the technical affordances or functionality of specific technologies. (see also 'Long-term view' recommendation)

Facilitate conversations about 'learner owned' digital practices

The institution can play a valuable role in facilitating discussion of student's learning practices, especially those that students feel are outside of a formal learning context. If successful students will be able to understand how the practices they have developed in the service of completing homework can become a legitimate basis of their 'independent' learning strategies for HE. This should reduce the nervousness students feel around their personal practices and highlight areas which could be refined (for example, the importance of critical evaluation strategies). Importantly this approach should not be an attempt for institutions to 'own' student's practices or to present a checklist of ratified methods.

Improve staff practices

Our research indicated disappointingly low expectations of staff competency with the digital. This supports recommendations arising from Phase 1 that teaching staff in particular need to be supported in developing their digital practices. This has to go beyond the functional skills approach of the schools sector by providing professional development opportunities around the digital and teaching practice and not simply training around specific software or hardware. If done well incoming students will be positively influenced in their perceptions of the value and role of the digital in their learning.

Long-term view

Institutions should consider the full student journey when planning to support, integrate and evolve digital practices

Supporting students in the use of digital technology is not something that can be covered in a one-off induction. As students progress through HE the value and relevance of the digital will shift. In simple terms this is a move from consumption, to engagement, to identity over a number of years. The incoming student who is preoccupied with discovering good resources online to complete assignments will hopefully leave the institution with the ability to contribute to their field online and with a burgeoning professional identity in digital spaces. The value of the latter becomes apparent over-time and ongoing discussion and support should be provided around the role and use of the digital.

Provision

This schools focused study tallies with the overall findings of the Digital Student study in terms of what technology incoming students expect to be provided by HE institutions. However we did see evidence of the slowly expanding nature of what students feel they are entitled to. We recommend regularly assessing incoming expectations to respond to the movement of the entitlement/enhancement threshold. It's worth noting that this threshold appears to generally be sector wide and so national indicators will be of value.

Research

Gain a better insight into school student's digital learning practices

We struggled to find a detailed picture of students' day-to-day practice with technology in current literature. We recommend that up to date research is supported in this area, especially research of a qualitative nature which focuses on students learning practices in both formal and informal contexts. It is crucial that HE understands the practices students are developing while at school in order to meet expectations and to challenge or extend those practices. A closer relationship between schools and the HE sector would be of great value.

Review resources

In tandem with the research above it would be of value to the HE sector to gather information on the types of digital sources and resources schools are buying into to support their teaching. The literature we reviewed tended to focus on the provision and use of hardware and platforms with little discussion of the resources being engaged with via those platforms. Student's experience of the digital in a learning context is as much about the resources they engage with as it is about the affordances of the technology directly. To respond to incoming expectations effectively the HE sector needs to understand which types of institutionally provided resources students find the most useful as part of their studies.

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Appendix A - focus groups

What I expect, what I want and what I haven't thought about.

Below is an extremely high level summary of the findings from our focus groups with late-stage secondary school students in a 'check-list' format. This has been constructed from a combination of a card-sorting activity and associated probe questions. The cards provided described areas of technology related provision such as 'Video lecture capture' and 'Access to high quality digital resources'. We asked the students to first stack the cards based on what they most wanted from higher education institutions. We then asked them to indicate which of these they expected to be provided when they arrived. Obviously the card sorting format is inherently limited and some of what we have included below is inferred from discussion around the activity and as a result of our probe questions.

As discussed, digital provision and practice varies widely in schools so specific expectations are likely to move between the categories below student-by-student. It's also of note that some of these expectations start to shift quite quickly as students begin to learn what is required of them during their time in HE.

Expected to be different/improved

- » Access to the Web (unblocked, faster, wifi)
- » BYOD (The ability to connect any device within reason to the institutional network)
- » Provision of large amounts of good quality information in digital formats (some of this via the VLE)
- » Better hardware and better access to that hardware
- » Provision of specialist tech and software + specialist training/expertise where relevant to their discipline
- » Provision of non-mandatory training in 'how to use the Web for learning'
- » Consistent provision of courses related resources in the VLE
- » Level of staff technical skills in using specialist software packages

Expected to be the same, or not considered directly

- » The way in which the VLE is used to support teaching and learning i.e. repository of resources
- » Use of Interactive white boards and digital projectors (generally as delivery mechanisms for PowerPoints)
- » Level of staff's technical skills in general

Not always expected but that would be appreciated if provided

- » Video lecture capture
- » Organisational and administrative information to be provided online (timetables, room locations, assignment related information etc.) possibly through the VLE?
- » Staff to have good skills with digital technology
- » Help with building a professional digital identity (although this was perhaps an area they hadn't considered)

Not expected

- » The use or provision of technology as a space for discourse (transformative pedagogies in digital spaces).
- » The institution to engage with them in Social Media.
- » Open educational practices such as blogging or producing work which is posted straight to the Web.

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